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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/034,271	12/28/2001	Marc R. Amling	02580-P0056A	9459

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ST. ONGE STEWARD JOHNSTON & REENS, LLC
986 BEDFORD STREET
STAMFORD, CT 06905-5619

EXAMINER

LEUBECKER, JOHN P

ART UNIT	PAPER NUMBER
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3739

DATE MAILED: 07/14/2003

2

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/034,271

Applicant(s)

AMLING ET AL.

Examiner

John P. Leubecker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-45 is/are pending in the application.
- 4a) Of the above claim(s) 41-45 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☒ Claim(s) 1-45 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-40, drawn to an imaging system, classified in class 600, subclass 110.
 - II. Claims 41-45, drawn to a connection system, classified in class 403, subclass 345.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, invention II has separate utility such as a data terminal connector using both optical and electrical data lines. See MPEP § 806.05(d).

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, and the search required for Group I is not required for Group II, restriction for examination purposes as indicated is proper. To evidence the requirement of "serious burden", it is noted that the application of such requirement affects both search and examination of the claimed patentably distinct inventions. Therefore, as much as the search for the distinct inventions might overlap to a certain extent, there still exists the burden of separate analysis of the prior art references for each distinct invention, as well as a separate written analysis in the Office Action.

4. During a telephone conversation with Wesley Whitmyer on March 13, 2003 a provisional election was made without traverse to prosecute the invention of I, claims 1-40. Affirmation of this election must be made by applicant in replying to this Office action. Claims 41-45 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Drawings

6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a cable having at least one channel comprising two electrical conductors (claim 2), a cable having four channels comprising eight electrical conductors (claim 5), an endoscope (claims 20-22, ³⁵⁻³⁷25-27) and the intermediate coupling/cable connecting the camera head and endoscope (22,37) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

7. The disclosure is objected to because of the following informalities: the specification fails to disclose the connection of the camera head to an endoscope, the transmission of light through the camera head to the endoscope, an intermediate coupling mounted on the camera head, and a cable connecting the intermediate coupling and the endoscope.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-4, 6-8, 12-22, 26-29, 31, 34, 35-37 and 40 rejected under 35 U.S.C. 102(b) as being anticipated by Monroe et al. (U.S. Pat. 5,311,859).

Monroe et al. disclose a camera head (22), a camera control unit (col.4, lines 31-38), a cable (30) including a single protective jacket (sheath of cable 30) enclosing at least one channel (e.g., comprising a plurality of electrical conductors) and a light source guide (col.3, lines 60-62). The at least one channel can be the space enclosing all of the electrical conductors or the space (usually a sheath covering each conductor) enclosing each individual conductor, which would provide at least four channels. The camera control unit (36) generates commands (e.g., drivers) which are transmitted to the camera head. All signal transmission is in a single direction (no bidirectional signaling is disclosed). Taking the at least one channel as the channel formed by the single protective jacket, at least two types of information is transmitted (e.g., image and control). The light source (col.4, lines 2-3) outputs light into the light source guide through a connector detachably connected to the camera control unit (col.3, lines 67-68). Light is transmitted through the camera head and to an endoscope (10) by an intermediate coupling (62)

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and cable (40). Note that the socket in the control unit that receives the proximal connector of the cable (30) meets the limitation of a sleeve since it positions the connector with respect to the light source, thus facilitating light coupling between light source and connector.

10. Claims 1-8, 12, 13, 15, 19-21, 26-31, 34-36 and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Ono et al. (U.S. Pat. 5,976,070).

Ono et al. disclose a camera head (distal end incorporating camera 53, Fig.6), a camera control unit (70) and a cable (54, Fig.6), wherein the cable comprises a single protective jacket enclosing at least one channel (defined by jacket 10, Fig.4) or as many as four channels (11,12,13,14, Fig.4) comprising up to eight conductors and a light source guide (col.8, lines 36-40). The channels transmit signals between the camera head and camera control unit (col.3, lines 56-61), each channel being in a single direction. Taking the at least one channel as the channel formed by cable jacket (54), at least two types of information is transmitted (e.g., image and control). A light source (60) is connected to the cable by connector (55). Note endoscope (51). Light is inherently transmitted through the camera head to the object.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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12. Claims 9, 10, 11, 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe et al. in view of McKenna et al. (U.S. Pat. 6,261,226) and separately over Ono et al. in view of McKenna et al.

Monroe et al. and Ono et al. fail to disclose the multiplexing of data from the camera head to the camera control unit. McKenna et al. teach that multiplexing signals from the camera head to the processing means reduces the number of wires and thus reduces the diameter necessary to accommodate such (col.21, lines 36-54). It would have been obvious to one of ordinary skill in the art to have multiplexed the signals in the signal line of Monroe et al. or Ono et al. for the reasons taught by McKenna et al. Inherently the signals would have to be demultiplexed at the processing means to accurately account for the transfer of data.

13. Claims 5, 24, 25, 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe et al. in view of "Interface Circuits for TIA/EIA-644 (LVDS) Design Notes" (hereinafter, "LVDS Design Notes").

Monroe et al. disclose what appears to be analog transmission of data and thus fails to disclose that at least one channel uses a LVDS protocol. The LVDS Design Notes teaches that LVDS signaling is a known method of transferring data at high speed with low power transmission and increased signal-to-noise ratio (page 1, first paragraph under "General Information" and page 9, first paragraph under "Radiated Emissions and Susceptibility"). It would have been obvious to one of ordinary skill in the art to have used a known signaling method (LDVS) in a device (Monroe et al.) where such method would be an improvement over the current single ended analog (or digital) transmission. With respect to claim 5, Monroe

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discloses single ended transmission conductors and thus, four channels would include only four conductors. However, with the obvious use of a LVDS protocol, each transmission path would comprise two twisted conductors (note page 2 of the LVDS Design Notes), thus providing eight conductors for every four channels.

14. Claims 24, 25, 38 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ono et al. in view of LVDS Design Notes for the reasons set forth above in numbered paragraph 13.

15. Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe et al. in view of Hattori (U.S. Pat. 4,356,534) and separately over Ono et al. in view of Hattori.

Both Monroe et al. and Ono et al. fail to disclose a light deflector that severs the light path once the cable is disconnected from the cameral control unit. Hattori teaches the severing of the light path with a light deflector (84, Fig.3) when the cable is disconnected from the light control unit (col.3, lines 39-48) to prevent the leakage of light and potential damage to a user's eyes (col.1, lines 17-24). It would have been obvious to the skilled artisan to have provided a light deflector in the control unit/light source of Monroe et al. and Ono et al. for the desirable reason taught by Hattori.

Double Patenting

16. Applicant is advised that should claim 1 be found allowable, claim 40 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application

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are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Keller et al. (U.S. Pat. 6,503,195) and Shin et al. (U.S. Pat. 5,974,464)--note use of LVDS transmission from the camera to the processor.

Wood et al. (U.S. Pat. 5,702,345)--note cable 13 including conductors and optical fibers.

Yamakita et al. (U.S. Pat. 6,293,910)--note embodiment of Figure 8A.

Suzuki et al. (U.S. Pat. 5,569,158)--note Fig.2.

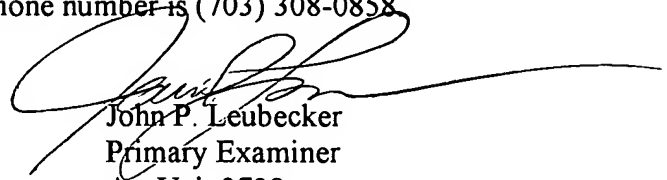
Easley (U.S. Pat. 5,509,096)--note connector shutter.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to John P. Leubecker whose telephone number is (703) 308-0951. The examiner can normally be reached on Monday through Friday, 6:00 AM to 2:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Linda C.M. Dvorak can be reached on (703) 308-0994. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3590 for regular communications and (703) 305-3590 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0858



John P. Leubecker
Primary Examiner
Art Unit 3739

jpl
June 30, 2003